Subject: [PATCH 1/6] Define and use task_active_pid_ns() wrapper
Posted by Sukadev Bhattiprolu on Fri, 06 Jul 2007 05:51:22 GMT
View Forum Message <> Reply to Message

Subject: [PATCH 1/6] Define and use task_active_pid_ns() wrapper

From: Sukadev Bhattiprolu <sukadev@us.ibm.com>

With multiple pid namespaces, a process is known by some pid_t in
every ancestor pid namespace. Every time the process forks, the
child process also gets a pid_t in every ancestor pid namespace.

While a process is visible in >=1 pid namespaces, it can see pid_t's
in only one pid namespace. We call this pid namespace it's "active
pid namespace", and it is always the youngest pid namespace in which
the process is known.

This patch defines and uses a wrapper to find the active pid namespace
of a process. The implementation of the wrapper will be changed in
when support for multiple pid namespaces are added.

Changelog:
2.6.22-rc4-mm2-pidns1:
- [Pavel Emelianov, Alexey Dobriyan] Back out the change to use
task_active_pid_ns() in child_reaper() since task->nsproxy
can be NULL during task exit (so child_reaper() continues to
use init_pid_ns).

to implement child_reaper() since init_pid_ns.child_reaper to
implement child_reaper() since tsk->nsproxy can be NULL during exit.

2.6.21-rc6-mm1:
- Rename task_pid_ns() to task_active_pid_ns() to reflect that a
process can have multiple pid namespaces.

Signed-off-by: Sukadev Bhattiprolu <sukadev@us.ibm.com>
---
fs/exec.c | 2 +-
fs/proc/proc_misc.c | 3 ++-
include/linux/pid_namespace.h | 5 +++++
kernel/exit.c | 5 +++--
kernel/nsproxy.c | 2 +-
kernel/pid.c | 4 ++--
6 files changed, 14 insertions(+), 7 deletions(-)

Index: lx26-22-rc6-mm1/include/linux/pid_namespace.h
==========
--- lx26-22-rc6-mm1.orig/include/linux/pid_namespace.h 2007-07-05 18:53:43.000000000 -0700

```
+++ lx26-22-rc6-mm1/include/linux/pid_namespace.h 2007-07-05 18:53:48.000000000 -0700
@@ -37,6 +37,11 @@ static inline void put_pid_ns(struct pid
  kref_put(&ns->kref, free_pid_ns);
 }

+static inline struct pid_namespace *task_active_pid_ns(struct task_struct *tsk)
+{
+ return tsk->nsproxy->pid_ns;
+}
+
 static inline struct task_struct *child_reaper(struct task_struct *tsk)
 {
  return init_pid_ns.child_reaper;
Index: lx26-22-rc6-mm1/fs/exec.c
===================================================================
--- lx26-22-rc6-mm1.orig/fs/exec.c 2007-07-05 18:53:43.000000000 -0700
+++ lx26-22-rc6-mm1/fs/exec.c 2007-07-05 18:53:48.000000000 -0700
@@ -827,7 +827,7 @@ static int de_thread(struct task_struct
   * so it is safe to do it under read_lock.
   */
  if (unlikely(tsk->group_leader == child_reaper(tsk)))
-  tsk->nsproxy->pid_ns->child_reaper = tsk;
+  task_active_pid_ns(tsk)->child_reaper = tsk;

  zap_other_threads(tsk);
  read_unlock(&tasklist_lock);
Index: lx26-22-rc6-mm1/fs/proc/proc_misc.c
===================================================================
--- lx26-22-rc6-mm1.orig/fs/proc/proc_misc.c 2007-07-05 18:53:43.000000000 -0700
+++ lx26-22-rc6-mm1/fs/proc/proc_misc.c 2007-07-05 18:53:48.000000000 -0700
@@ -94,7 +94,8 @@ static int loadavg_read_proc(char *page,
   LOAD_INT(a), LOAD_FRAC(a),
   LOAD_INT(b), LOAD_FRAC(b),
   LOAD_INT(c), LOAD_FRAC(c),
-  nr_running(), nr_threads, current->nsproxy->pid_ns->last_pid);
+  nr_running(), nr_threads,
+  task_active_pid_ns(current)->last_pid);
  return proc_calc_metrics(page, start, off, count, eof, len);
 }

Index: lx26-22-rc6-mm1/kernel/exit.c
===================================================================
--- lx26-22-rc6-mm1.orig/kernel/exit.c 2007-07-05 18:53:43.000000000 -0700
+++ lx26-22-rc6-mm1/kernel/exit.c 2007-07-05 18:53:48.000000000 -0700
@@ -909,8 +909,9 @@ fastcall NORET_TYPE void do_exit(long co
  if (unlikely(!tsk->pid))
   panic("Attempted to kill the idle task!");
  if (unlikely(tsk == child_reaper(tsk))) {
```

```
-  if (tsk->nsproxy->pid_ns != &init_pid_ns)
-   tsk->nsproxy->pid_ns->child_reaper = init_pid_ns.child_reaper;
+  if (task_active_pid_ns(tsk) != &init_pid_ns)
+   task_active_pid_ns(tsk)->child_reaper =
+     init_pid_ns.child_reaper;
   else
    panic("Attempted to kill init!");
  }
Index: lx26-22-rc6-mm1/kernel/pid.c
===================================================================
--- lx26-22-rc6-mm1.orig/kernel/pid.c 2007-07-05 18:53:43.000000000 -0700
+++ lx26-22-rc6-mm1/kernel/pid.c 2007-07-05 18:53:48.000000000 -0700
@@ -213,7 +213,7 @@ struct pid *alloc_pid(void)
  if (!pid)
   goto out;

- nr = alloc_pidmap(current->nsproxy->pid_ns);
+ nr = alloc_pidmap(task_active_pid_ns(current));
  if (nr < 0)
   goto out_free;

@@ -358,7 +358,7 @@ struct pid *find_ge_pid(int nr)
   pid = find_pid(nr);
   if (pid)
    break;
-  nr = next_pidmap(current->nsproxy->pid_ns, nr);
+  nr = next_pidmap(task_active_pid_ns(current), nr);
  } while (nr > 0);

  return pid;
Index: lx26-22-rc6-mm1/kernel/nsproxy.c
===================================================================
--- lx26-22-rc6-mm1.orig/kernel/nsproxy.c 2007-07-05 18:53:42.000000000 -0700
+++ lx26-22-rc6-mm1/kernel/nsproxy.c 2007-07-05 18:54:07.000000000 -0700
@@ -86,7 +86,7 @@ static struct nsproxy *create_new_namesp
   goto out_ipc;
  }

- new_nsp->pid_ns = copy_pid_ns(flags, tsk->nsproxy->pid_ns);
+ new_nsp->pid_ns = copy_pid_ns(flags, task_active_pid_ns(tsk));
  if (IS_ERR(new_nsp->pid_ns)) {
   err = PTR_ERR(new_nsp->pid_ns);
   goto out_pid;
```

_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

Subject: Re: [PATCH 1/6] Define and use task_active_pid_ns() wrapper
Posted by Pavel Emelianov on Fri, 13 Jul 2007 05:19:44 GMT
View Forum Message <> Reply to Message

sukadev@us.ibm.com wrote:
> Subject: [PATCH 1/6] Define and use task_active_pid_ns() wrapper
>
> From: Sukadev Bhattiprolu <sukadev@us.ibm.com>
>
> With multiple pid namespaces, a process is known by some pid_t in
> every ancestor pid namespace. Every time the process forks, the
> child process also gets a pid_t in every ancestor pid namespace.
>
> While a process is visible in >=1 pid namespaces, it can see pid_t's
> in only one pid namespace. We call this pid namespace it's "active
> pid namespace", and it is always the youngest pid namespace in which
> the process is known.
>
> This patch defines and uses a wrapper to find the active pid namespace
> of a process. The implementation of the wrapper will be changed in
> when support for multiple pid namespaces are added.
>
> Changelog:
> 2.6.22-rc4-mm2-pidns1:
> - [Pavel Emelianov, Alexey Dobriyan] Back out the change to use
> task_active_pid_ns() in child_reaper() since task->nsproxy
> can be NULL during task exit (so child_reaper() continues to
> use init_pid_ns).
>
> to implement child_reaper() since init_pid_ns.child_reaper to
> implement child_reaper() since tsk->nsproxy can be NULL during exit.
>
> 2.6.21-rc6-mm1:
> - Rename task_pid_ns() to task_active_pid_ns() to reflect that a
> process can have multiple pid namespaces.
>
> Signed-off-by: Sukadev Bhattiprolu <sukadev@us.ibm.com>

Acked-by: Pavel Emelianov <xemul@openvz.org>

But I'm not sure Andrew will like the construction like

some_function()->xxx;

I used to do so in memory controller, but he asked to fix...

> ---
> fs/exec.c | 2 +-
> fs/proc/proc_misc.c | 3 ++-

```
>  include/linux/pid_namespace.h |    5 +++++
>  kernel/exit.c                 |    5 +++--
>  kernel/nsproxy.c              |    2 +-
>  kernel/pid.c                  |    4 ++--
>  6 files changed, 14 insertions(+), 7 deletions(-)
>
> Index: lx26-22-rc6-mm1/include/linux/pid_namespace.h
> ===================================================================
> --- lx26-22-rc6-mm1.orig/include/linux/pid_namespace.h 2007-07-05 18:53:43.000000000 -0700
> +++ lx26-22-rc6-mm1/include/linux/pid_namespace.h 2007-07-05 18:53:48.000000000 -0700
> @@ -37,6 +37,11 @@ static inline void put_pid_ns(struct pid
>   kref_put(&ns->kref, free_pid_ns);
>  }
>
> +static inline struct pid_namespace *task_active_pid_ns(struct task_struct *tsk)
> +{
> + return tsk->nsproxy->pid_ns;
> +}
> +
>  static inline struct task_struct *child_reaper(struct task_struct *tsk)
>  {
>   return init_pid_ns.child_reaper;
> Index: lx26-22-rc6-mm1/fs/exec.c
> ===================================================================
> --- lx26-22-rc6-mm1.orig/fs/exec.c 2007-07-05 18:53:43.000000000 -0700
> +++ lx26-22-rc6-mm1/fs/exec.c 2007-07-05 18:53:48.000000000 -0700
> @@ -827,7 +827,7 @@ static int de_thread(struct task_struct
>    * so it is safe to do it under read_lock.
>    */
>   if (unlikely(tsk->group_leader == child_reaper(tsk)))
> -  tsk->nsproxy->pid_ns->child_reaper = tsk;
> +  task_active_pid_ns(tsk)->child_reaper = tsk;
>
>   zap_other_threads(tsk);
>   read_unlock(&tasklist_lock);
> Index: lx26-22-rc6-mm1/fs/proc/proc_misc.c
> ===================================================================
> --- lx26-22-rc6-mm1.orig/fs/proc/proc_misc.c 2007-07-05 18:53:43.000000000 -0700
> +++ lx26-22-rc6-mm1/fs/proc/proc_misc.c 2007-07-05 18:53:48.000000000 -0700
> @@ -94,7 +94,8 @@ static int loadavg_read_proc(char *page,
>    LOAD_INT(a), LOAD_FRAC(a),
>    LOAD_INT(b), LOAD_FRAC(b),
>    LOAD_INT(c), LOAD_FRAC(c),
> -  nr_running(), nr_threads, current->nsproxy->pid_ns->last_pid);
> +  nr_running(), nr_threads,
> +  task_active_pid_ns(current)->last_pid);
>   return proc_calc_metrics(page, start, off, count, eof, len);
>  }
```

>
> Index: lx26-22-rc6-mm1/kernel/exit.c
> ===
> --- lx26-22-rc6-mm1.orig/kernel/exit.c 2007-07-05 18:53:43.000000000 -0700
> +++ lx26-22-rc6-mm1/kernel/exit.c 2007-07-05 18:53:48.000000000 -0700
> @@ -909,8 +909,9 @@ fastcall NORET_TYPE void do_exit(long co
> if (unlikely(!tsk->pid))
> panic("Attempted to kill the idle task!");
> if (unlikely(tsk == child_reaper(tsk))) {
> - if (tsk->nsproxy->pid_ns != &init_pid_ns)
> - tsk->nsproxy->pid_ns->child_reaper = init_pid_ns.child_reaper;
> + if (task_active_pid_ns(tsk) != &init_pid_ns)
> + task_active_pid_ns(tsk)->child_reaper =
> + init_pid_ns.child_reaper;
> else
> panic("Attempted to kill init!");
> }
> Index: lx26-22-rc6-mm1/kernel/pid.c
> ===
> --- lx26-22-rc6-mm1.orig/kernel/pid.c 2007-07-05 18:53:43.000000000 -0700
> +++ lx26-22-rc6-mm1/kernel/pid.c 2007-07-05 18:53:48.000000000 -0700
> @@ -213,7 +213,7 @@ struct pid *alloc_pid(void)
> if (!pid)
> goto out;
>
> - nr = alloc_pidmap(current->nsproxy->pid_ns);
> + nr = alloc_pidmap(task_active_pid_ns(current));
> if (nr < 0)
> goto out_free;
>
> @@ -358,7 +358,7 @@ struct pid *find_ge_pid(int nr)
> pid = find_pid(nr);
> if (pid)
> break;
> - nr = next_pidmap(current->nsproxy->pid_ns, nr);
> + nr = next_pidmap(task_active_pid_ns(current), nr);
> } while (nr > 0);
>
> return pid;
> Index: lx26-22-rc6-mm1/kernel/nsproxy.c
> ===
> --- lx26-22-rc6-mm1.orig/kernel/nsproxy.c 2007-07-05 18:53:42.000000000 -0700
> +++ lx26-22-rc6-mm1/kernel/nsproxy.c 2007-07-05 18:54:07.000000000 -0700
> @@ -86,7 +86,7 @@ static struct nsproxy *create_new_namesp
> goto out_ipc;
> }
>
> - new_nsp->pid_ns = copy_pid_ns(flags, tsk->nsproxy->pid_ns);

> + new_nsp->pid_ns = copy_pid_ns(flags, task_active_pid_ns(tsk));
>   if (IS_ERR(new_nsp->pid_ns)) {
>   err = PTR_ERR(new_nsp->pid_ns);
>   goto out_pid;
> _____
> Containers mailing list
> Containers@lists.linux-foundation.org
> https://lists.linux-foundation.org/mailman/listinfo/containers
>

_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers

---

Subject: Re: [PATCH 1/6] Define and use task_active_pid_ns() wrapper
Posted by Sukadev Bhattiprolu on Fri, 13 Jul 2007 06:03:17 GMT
View Forum Message <> Reply to Message

Pavel Emelianov [xemul@openvz.org] wrote:
| sukadev@us.ibm.com wrote:
| > Subject: [PATCH 1/6] Define and use task_active_pid_ns() wrapper
| >
| > From: Sukadev Bhattiprolu <sukadev@us.ibm.com>
| >
| > With multiple pid namespaces, a process is known by some pid_t in
| > every ancestor pid namespace. Every time the process forks, the
| > child process also gets a pid_t in every ancestor pid namespace.
| >
| > While a process is visible in >=1 pid namespaces, it can see pid_t's
| > in only one pid namespace. We call this pid namespace it's "active
| > pid namespace", and it is always the youngest pid namespace in which
| > the process is known.
| >
| > This patch defines and uses a wrapper to find the active pid namespace
| > of a process. The implementation of the wrapper will be changed in
| > when support for multiple pid namespaces are added.
| >
| > Changelog:
| > 2.6.22-rc4-mm2-pidns1:
| > - [Pavel Emelianov, Alexey Dobriyan] Back out the change to use
| >   task_active_pid_ns() in child_reaper() since task->nsproxy
| >   can be NULL during task exit (so child_reaper() continues to
| >   use init_pid_ns).
| >
| >   to implement child_reaper() since init_pid_ns.child_reaper to
| >   implement child_reaper() since tsk->nsproxy can be NULL during exit.
| >

| > 2.6.21-rc6-mm1:
| > - Rename task_pid_ns() to task_active_pid_ns() to reflect that a
| >   process can have multiple pid namespaces.
| >
| > Signed-off-by: Sukadev Bhattiprolu <sukadev@us.ibm.com>
|
| Acked-by: Pavel Emelianov <xemul@openvz.org>
|
| But I'm not sure Andrew will like the construction like
|
| some_function()->xxx;
|
| I used to do so in memory controller, but he asked to fix...

Hmm. I see this in the code:

 rcu_dereference(p->real_parent)->tgid

Maybe rcu_deref is a spl case. Well, if Andrew complains, I
will add local vars as needed. I think its easier to read
with a wrapper than expanded out.

Thanks,

Suka

_____
Containers mailing list
Containers@lists.linux-foundation.org
https://lists.linux-foundation.org/mailman/listinfo/containers